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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/660,314

09/10/2003

Yojiro Matsuda

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5370

27123

7590

05/25/2004

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EXAMINER

THOMAS, BRANDI N

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 05/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/660,314

Applicant(s)

MATSUDA ET AL.

Examiner

Brandi N Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0504.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: Detailed Action.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. Acknowledgement is made of receipt of Information Disclosure Statement(s) (PTO-1449) filed 2/2/04 and 4/1/04. An initialed copy is attached to this Office Action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa (6542284 B2) in view of Ikeda et al. (US 2003/0048521 A1).

Regarding claim 1, Ogawa discloses an electrophotographic display, in figure 2, comprising: a plurality of microcapsules (8) each encapsulating therein an insulating liquid (6) and a plurality of charged electrophoretic particles (5) dispersed in the insulating liquid (6) (col. 6, lines 32-37), a first substrate (1) and a second substrate (2) disposed opposite to each other so as to sandwich said plurality of microcapsules (8) (col. 6, lines 37-40), and a plurality of

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electrodes (3 and 4) capable of being supplied with a voltage (col. 7, lines 65-67), wherein a voltage is applied between said plurality of electrodes (3 and 4) to move said charged electrophoretic particles (5) between a first internal wall portion of each microcapsule (8) an external surface of which contacts said first substrate (col. 3, lines 42-46 and figure 6) except that it does not show the electrophoretic charged particles moved to a second internal wall portion of each microcapsule an external surface of which is substantially out of contact with both said first and second substrates. Ikeda et al. shows that it is known to provide an the electrophoretic charged particles moved to a second internal wall portion of each microcapsule an external surface of which is substantially out of contact with both said first and second substrates for presenting a white display (section 0042). Therefore it would have been obvious to someone of ordinary skill in the art at the time the invention was made to combine the device of Ogawa with the particles moved to a second internal wall of Ikeda et al. for the purpose of presenting a white display (section 0042).

Regarding claim 2, Ogawa discloses a display, in figure 2, wherein said plurality of electrodes (3 and 4) comprise a first electrode (3) disposed along said first substrate (1) and a second electrode (4) which is electrically isolated from the first electrode (3) and is disposed at least a part of a space (not numbered, shown as gaps between microcapsules) enclosed with said first and second substrates (1 and 2) and the surfaces of microcapsules (8).

Regarding claim 3, Ogawa discloses a display, in figure 2, wherein the second electrode (4) is filled in at least a part of the space (not numbered, shown as gaps between microcapsules).

Regarding claim 4, Ogawa discloses a display, wherein the second electrode (4) comprises an electroconductive member and is filled in at least a part of the space (not numbered, shown as gaps between microcapsules) (col. 11, lines 3-5).

Regarding claim 5, Ogawa discloses a display including an electroconductive member but does not disclose the electroconductive member comprising a liquid. It would be obvious to include a liquid in the electroconductive member, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use (In re Leshin, 125 USPQ 416). It would have been obvious to someone of ordinary skill in the art at the time the invention was made to include a liquid in the electroconductive member for the purpose of an easier process in filling the space between microcapsules.

Regarding claim 6, Ogawa discloses a display, wherein the electroconductive member comprises a metal (col. 10, lines 56 and 57).

Regarding claim 7, Ogawa discloses a display, in figure 2, wherein the second electrode (4) is formed and disposed on the first substrate or the second substrate (1 and 2) in the form of a projection (col. 11, lines 39-42).

Regarding claim 8, Ogawa discloses a display, in figure 2, wherein the second electrode (4) is formed and disposed on an upper or lower surface or within a member which is formed on the first substrate or the second substrate (1 and 2) in the form of a projection (col. 11, lines 39-42).

Regarding claims 9 and 10, Ogawa discloses microcapsules (8) except for each microcapsule having a flattened shape and rectangular shape. It is obvious to modify the shape of the microcapsule to a flattened and rectangular shape, since such a modification would have

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involved a mere change in the shape of a component. A change in size is generally recognized as being within the level of ordinary skill in the art (In re Rose, 105 USPQ 237 (CCPA 1955)). It would have been obvious to someone of ordinary skill in the art at the time the invention was made to use a flattened and rectangular shape for the purpose of maintaining a compact and efficient display.

Regarding claim 11, Ogawa discloses a display, in figure 3, wherein said microcapsules (8) are disposed on a random basis irrespective of a position of the first electrode (3).

Regarding claim 12, Ogawa discloses a display, in figure 2, wherein each microcapsule (8) is disposed in alignment with a position of the first electrode (3).

Regarding claim 13, Ogawa discloses a display, wherein the first electrode (3) has a projected surface toward the second substrate (2) (col. 11, lines 10-19).

Regarding claim 14, Ikeda et al. discloses a display, wherein the second electrode is a common electrode for all pixels (section 0016).

Regarding claim 15, Ikeda et al. discloses a display, wherein a third electrode is disposed on the second substrate (section 0049).

Regarding claim 16, Ikeda et al. discloses a display, wherein the display has a plurality of pixels each comprising a plurality of microcapsules, and the second electrode is disposed at a boundary between mutually adjacent two pixels (section 004 and 0053).

Regarding claim 17, Ogawa discloses a process for producing an electrophoretic display including a plurality of microcapsules (8) each encapsulating therein an insulating liquid (6) and a plurality of charged electrophoretic particles (5) dispersed in the insulating liquid (6) (col. 6, lines 32-37), a first substrate (1) and a second substrate (2) disposed opposite to each other so as

to sandwich the plurality of microcapsules (8) (col. 6, lines 37-40), a first electrode (3) disposed along the first substrate (1) and a second electrode (4) which is electrically isolated from the first electrode (3) and is disposed at least a part of a space (not numbered, shown as gaps between microcapsules) enclosed with said first and second substrates (1 and 2) and the surfaces of microcapsules (8); said process comprising: a step of forming the first electrode (3) on the first substrate (1) (figure 2), (2) a step of disposing the plurality of microcapsules (8) on the first or second substrate (1 and 2) (figure 2), (3) a step of disposing the first and second substrate (1 and 2) so as to sandwich the plurality of microcapsules (8) (col. 6, lines 37-40 and figure 2), and (4) a step of forming the second electrode (4) in a space (not numbered, shown as gaps between microcapsules) between adjacent microcapsules before or after the step (3) (figure 2).

Regarding claim 18, Ogawa discloses a process, wherein the step (4) of forming the second electrode (4) is performed after the step (3) and includes a step of incorporating an electroconductive member in a space (not numbered, shown as gaps between microcapsules) between the first and second substrates (1 and 2) (col. 11, lines 3-5).

Regarding claim 19, Ogawa discloses a process, wherein the step (4) of forming the second electrode (4) containing an electroconductive member but does not specifically discloses injecting the electroconductive member in the space between the microcapsules. It would have been obvious to one having ordinary skill in the art to inject the electroconductive member in the space between the microcapsules for the purpose of the using the electroconductive member as a means to aid in applying a voltage throughout the microcapsules.

Regarding claim 20, Ogawa discloses a process, in figure 2, wherein the step (4) of forming the second electrode (4) is performed before the step (3) and includes a step of disposing

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each microcapsule (8) between adjacent second electrodes (4) formed on the first and second substrates (1 and 2) in the form of a projection (col. 11, lines 39-42).

Regarding claim 21, Ogawa discloses a process, wherein the step (4) of forming the second electrode (4) is performed before the step (3) and includes a step of forming the second electrode (4) in the space between adjacent microcapsules (8) by electroplating (col. 11, lines 20-26).

Regarding claim 22, Ogawa discloses microcapsules (8) except for each microcapsule having a flattened shape. It is obvious to modify the shape of the microcapsule to a flattened, since such a modification would have involved a mere change in the shape of a component. A change in size is generally recognized as being within the level of ordinary skill in the art (In re Rose, 105 USPQ 237 (CCPA 1955)). It would have been obvious to someone of ordinary skill in the art at the time the invention was made to use a flattened and rectangular shape for the purpose of maintaining a compact and efficient display.

Regarding claim 23, Ogawa discloses a process for producing an electrophoretic display including a plurality of microcapsules (8) each encapsulating therein an insulating liquid (6) and a plurality of charged electrophoretic particles (5) dispersed in the insulating liquid (col. 6, lines 32-37), a first substrate (1) and a second substrate (2) disposed opposite to each other so as to sandwich the plurality of microcapsules (8) (col. 6, lines 37-40), a first electrode (3) disposed along the first substrate (1) and a second electrode (4) which is electrically isolated from the first electrode (3) and is disposed at least a part of a space (not numbered, shown as gaps between microcapsules) enclosed with the first and second substrates (1 and 2) and the surfaces of microcapsules (8) (figure 2); said process comprising: a first step of preparing a laminated

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structure including an insulating layer (6) and a projection-shaped electroconductive member (col. 11, lines 3-5), as the second electrode (4), disposed on the insulating layer by forming the electroconductive member at a recess of a mold substrate (figure 3), laminating the insulating layer (6) on the electroconductive member, and removing the laminated structure from the mold substrate, a second step of disposing the plurality of microcapsules (8) so that the projection-shaped electroconductive member is located between adjacent microcapsules (col. 11, lines 39-42), and a third step of bonding the first and second substrates (1 and 2) to each other by using the laminated structure, in which the microcapsules (8) are disposed, as the first or second substrate (col 5, lines 51-57).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kanbe (US 2004/0061927 A1) discloses an electrophoretic display using microcapsules and having high contrast.

LeCain et al. (US 2004/0027327 A1) discloses a front plane laminate useful in the manufacture of electro-optic displays.


Kawaii (US 2004/0017349 A1) disclose an electrophoretic display capable of improved contrast.

Albert (6392786 B1) discloses an encapsulated electrophoretic medium comprising a layer of capsules comprising a liquid.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N Thomas whose telephone number is 571-272-2341. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


BNT
May 21, 2004


RICKY MACK
PRIMARY EXAMINER